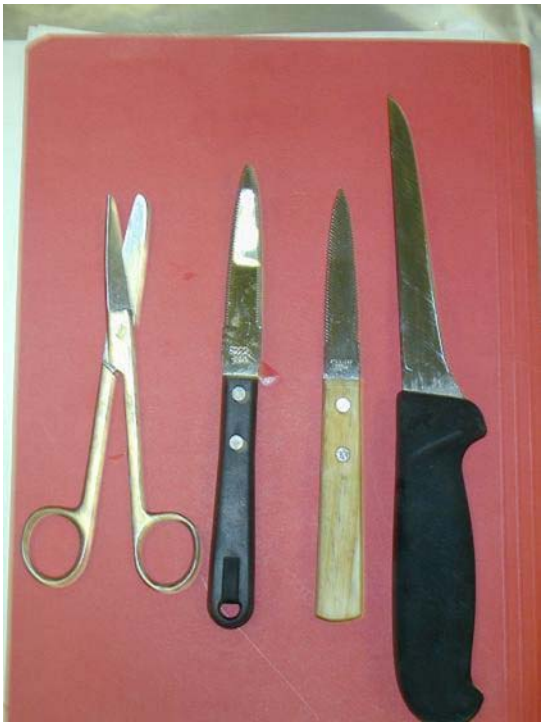
OPTION 2 (PREFERRED): Removal of Brain Stem Via Foramen Magnum.

This procedure is relatively easy in elk compared to deer having a smaller foramen magnum. Still, even with the smallest of deer breeds - a little practice makes perfect and the technique becomes quite routine.

1. **Personal Protective Equipment (PPE) and Clothing** not limited to safety goggles, disposable respirator mask and disposable gloves MUST be worn during sample collection.

2. Tools needed are a small pair of scissors (curved best), pair of wide-tipped grasping forceps and an instrument of choice for brainstem removal. This instrument may be a grapefruit knife or spoon, a modified small or mid-sized spoon, a jet stream of water or simply anything that ultimately gets the job done with a successful outcome.

The second instrument from the left is a modified, heavier gauge metal table spoon. It works well with elk/larger deer with bigger foramen magnum openings.

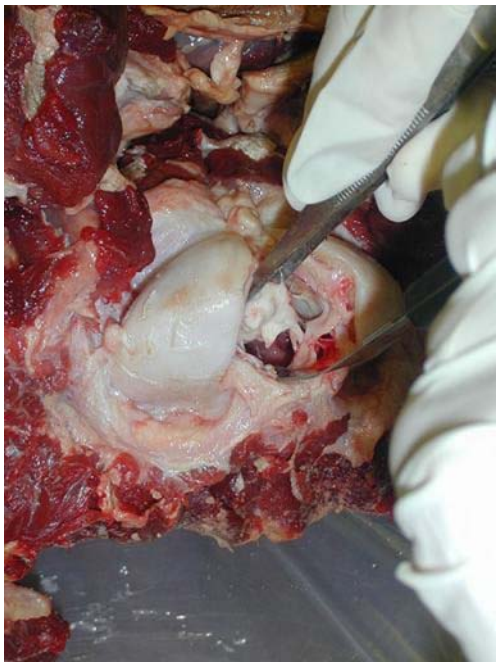


The second instrument from the left is a sharp-pointed, serrated grapefruit knife with the tip bent in an upward direction. It works well with deer having smaller foramen magnum openings.

3. **CAREFULLY and SAFELY** detach the head from the carcass at the atlanto-occipital joint where the skull meets the neck bones. The foramen magnum with spinal cord protruding out should be seen when done properly.

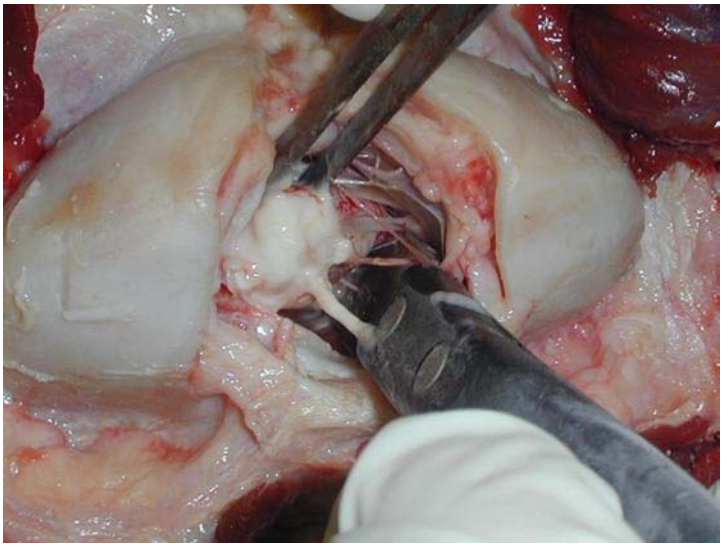
4. Place the head on a flat, disinfectable, surface at a comfortable working height. Have the head **upside down** with nose pointing away from you.

5.



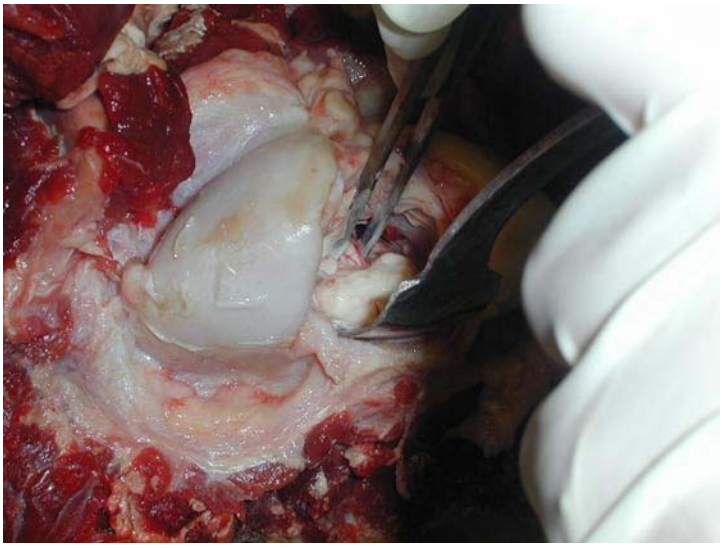
With forceps or tweezers, take hold of the end of the spinal cord. Gently insert either special spoon or knife (grapefruit in this case) between the spinal cord and the tough sheath (dura mater) surrounding it to a depth of 2 – 2 ½ inches.

6.



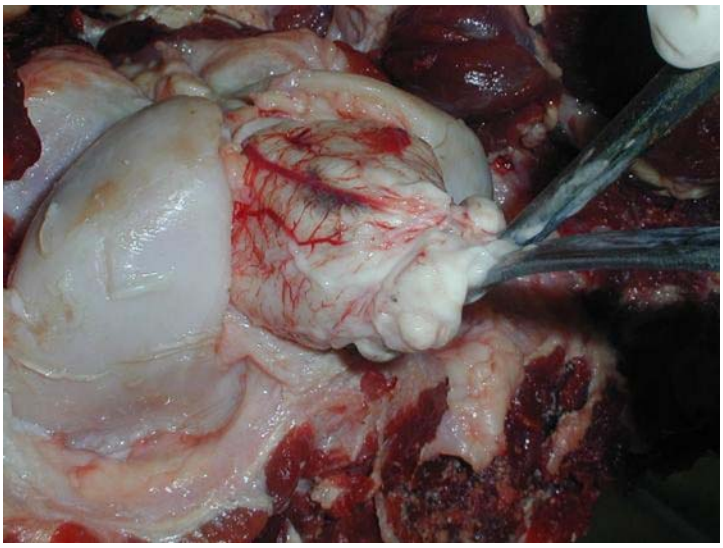
Sweep the knife in a 360 degree arc around the top, sides and bottom of the spinal cord to cut the attachments being careful to stay close to the bone.

7.



Insert the knife/spoon (modified spoon in this case with elk being sampled) below the spinal cord and advance it forward 3-4 inches keeping it below the spinal cord. Tip the end of the knife/spoon upward making contact with the bone and gently pull the knife/spoon backward.

8.



At the same time or alternating times, gently pull in backward motion with forceps on spinal cord while pulling back on spoon with tip pointed upward rubbing against inside skull to remove severed brainstem.

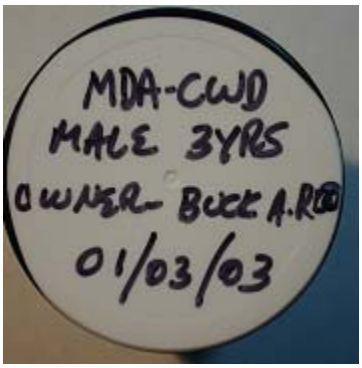
9.

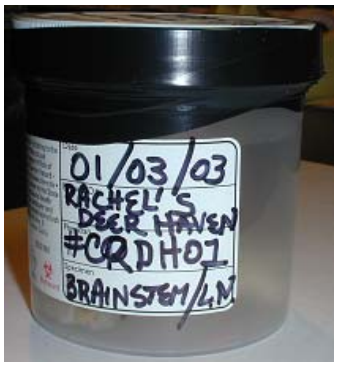
A GOOD REPRESENTATIVE SAMPLE OF THE BRAINSTEM PORTION NEEDED FOR CWD TESTING. It is very important that the juncture where the spinal cord and brain meet forming a "V" be submitted with the remainder of brainstem.

10.

Immerse the entire brainstem in 10% NB formalin. **Make sure** the tissues are "**drowning"** in the formalin. Add more 10% NB formalin from an unused jar if you need more formalin. If the jar is not large enough (elk brains possibly) then use an appropriate larger, watertight unbreakable (plastic, etc.) jar, which can be sealed with tape.

11.





Properly identify the sample by placing MDA-CWD on lid along with sex, age, owner's name and/or farm name, date collected, specimen tissue type and animal or sample identification number.